

WHAT IS CLAIMED IS:

1. A pesticidal composition comprising, in admixture with an acceptable carrier, rosemary oil and optionally, a diluent selected from the group consisting of wintergreen oil, mineral oil, benzyl alcohol, citronellal, d-limonene, safflower oil, soybean oil, and sesame oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

5 2. The pesticidal composition of claim 1, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

10 3. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 1.

15 4. The method of claim 3, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

20 5. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil and optionally, a diluent selected from the group consisting of rosemary oil, mineral oil, benzyl alcohol, citronellal, d-limonene, safflower oil, soybean oil, and sesame oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

6. The pesticidal composition of claim 5, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

7. The composition of claim 5, wherein the diluent is mineral oil.

25 8. The composition of claim 7, wherein wintergreen oil and mineral oil are present in a ratio of 70% to 30%, respectively.

9. The composition of claim 7 wherein wintergreen oil and mineral oil is present in a ratio of 30% to 70%, respectively.

30 10. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 5.

11. The method of claim 10, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

12. A pesticidal composition comprising, in admixture with an acceptable carrier, rosemary oil, wintergreen oil and optionally, a diluent selected from the group consisting of mineral oil, benzyl alcohol, citronellal, d-limonene, safflower oil, soybean oil, and sesame oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, 5 larvae and eggs thereof.

13. The pesticidal composition of claim 12, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

10 14. The pesticidal composition of claim 12, wherein rosemary oil and wintergreen oil are present in the pesticide formulation in the percent ratio of 25% to 75%, respectively.

15 15. The pesticidal composition of claim 12, wherein rosemary oil and wintergreen oil are present in the percent ratio of 75% to 25%, respectively.

16 16. The composition of claim 12, wherein wintergreen oil and rosemary oil are present () in the percent ratio of 80% to 20%, respectively.

20 17. The pesticidal composition of claim 12, wherein rosemary oil and wintergreen oil are present in equal amounts.

18. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 12.

20 19. The method of claim 18, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

25 20. A pesticidal composition comprising, in admixture with an acceptable carrier, rosemary oil, wintergreen oil, mineral oil and optionally, a diluent selected from the group consisting of mineral oil, benzyl alcohol, citronellal, d-limonene, safflower oil, soybean oil, and sesame oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

30 21. The pesticidal composition of claim 20, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

22. The pesticidal composition of claim 20, wherein rosemary oil, wintergreen oil and mineral oil are present in the percent ratio of 20% to 40% to 40%, respectively.

23. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 20.

24. The method of claim 23, wherein the invertebrate pest is selected from the 5 group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

25. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil, mineral oil and phenylethyl propionate, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

10 26. The pesticidal composition of claim 25, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

27. The pesticidal composition of claim 25, wherein wintergreen oil, mineral oil and phenylethyl propionate are present in the pesticide formulation in the percent ratio of 15 40% to 40% to 20%, respectively.

28. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 25.

29. The method of claim 28, wherein the invertebrate pest is selected from the 20 group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

30. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil, mineral oil and cinnamon oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

25 31. The pesticidal composition of claim 30, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

32. The pesticidal composition of claim 30, wherein wintergreen oil, mineral oil and cinnamon oil are present in the pesticide formulation in the percent ratio of 40% to 40% 30 to 20%, respectively.

33. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 30.

34. The method of claim 33, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

5 35. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil, phenylethyl propionate and castor oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

36. The pesticidal composition of claim 35, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

10 37. The pesticidal composition of claim 35, wherein wintergreen oil, phenylethyl propionate and castor oil are present in the pesticide formulation in the percent ratio of 50% to 20% to 30%, respectively.

15 38. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 35.

39. The method of claim 38, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

20 40. A pesticidal composition comprising, in admixture with an acceptable carrier, rosemary oil, wintergreen oil, mineral oil and phenylethyl propionate, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

25 41. The pesticidal composition of claim 40, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

42. The pesticidal composition of claim 40, wherein rosemary oil, wintergreen oil, mineral oil and phenylethyl propionate are present in the pesticide formulation in the percent ratio of 5% to 50% to 30% to 15%, respectively.

30 43. The pesticidal composition of claim 40, wherein rosemary oil, wintergreen oil, mineral oil and phenylethyl propionate are present () in the percent ratio of 5% to 60% to 20% to 15%, respectively.

44. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 40.

45. The method of claim 44, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

5 46. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil, mineral oil, phenylethyl propionate and sesame oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

47. The pesticidal composition of claim 46, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

10 48. The pesticidal composition of claim 46, wherein wintergreen oil, mineral oil, phenylethyl propionate and sesame oil are present in the pesticide formulation in the percent ratio of 55% to 30% to 10% to 5%, respectively.

15 49. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 46.

50. The method of claim 49, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

20 51. A pesticidal composition comprising, in admixture with an acceptable carrier, rosemary oil, wintergreen oil, mineral oil, phenylethyl propionate and soybean oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

25 52. The pesticidal composition of claim 51, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

53. The pesticidal composition of claim 51, wherein rosemary oil, wintergreen oil, mineral oil, phenylethyl propionate and soybean oil are present in the pesticide formulation in the percent ratio of 5% to 55% to 20% to 15% to 5%, respectively.

30 54. The pesticidal composition of claim 51, wherein rosemary oil, wintergreen oil, mineral oil, phenylethyl propionate and soybean oil are present in the percent ratio of 5% to 60% to 15% to 15% to 5%, respectively.

55. The pesticidal composition of claim 51, wherein rosemary oil, wintergreen oil, mineral oil, phenylethyl propionate and soybean oil are present () in the percent ratio of 5% to 65% to 10% to 15% to 5%, respectively.

56. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 51.

5 57. The method of claim 56, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

10 58. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil, phenylethyl propionate, soybean oil, sesame oil and safflower oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

59. The pesticidal composition of claim 58, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

15 60. The pesticidal composition of claim 58, wherein wintergreen oil, phenylethyl propionate, soybean oil, sesame oil and safflower oil are present in the pesticide formulation in the percent ratio of 35% to 20% to 5% to 5% to 35%, respectively.

20 61. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 58.

62. The method of claim 61, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

25 63. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil, phenylethyl propionate, soybean oil, eugenol and safflower oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

64. The pesticidal composition of claim 63, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

30 65. The pesticidal composition of claim 63, wherein wintergreen oil, phenylethyl propionate, soybean oil, eugenol and safflower oil are present in the pesticide formulation in the percent ratio of 40% to 15% to 5% to 5% to 35%, respectively.

66. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 63.

67. The method of claim 66, wherein the invertebrate pest is selected from the 5 group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

68. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil, soybean oil, sesame oil, eugenol and safflower oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

10 69. The pesticidal composition of claim 68, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

15 70. The pesticidal composition of claim 68, wherein wintergreen oil, soybean oil, sesame oil, eugenol and safflower oil are present in the pesticide formulation in the percent ratio of 35% to 5% to 5% to 20% to 35%, respectively.

71. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 68.

20 72. The method of claim 71, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

73. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil, phenylethyl propionate, eugenol and safflower oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

25 74. The pesticidal composition of claim 73, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

75. The pesticidal composition of claim 73, wherein wintergreen oil, phenylethyl propionate, eugenol and safflower oil are present in the pesticide formulation in the percent 30 ratio of 50% to 15% to 5% to 20%, respectively.

76. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 73.

77. The method of claim 76, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

78. A pesticidal composition comprising, in admixture with an acceptable carrier, 5 rosemary oil, wintergreen oil, mineral oil, phenylethyl propionate and safflower oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

79. The pesticidal composition of claim 78, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and 10 weevils and eggs thereof.

80. The pesticidal composition of claim 78, wherein rosemary oil, wintergreen oil, mineral oil, phenylethyl propionate and safflower oil are present in the pesticide formulation in the percent ratio of 5% to 50% to 10% to 15% to 20%, respectively.

81. A method for controlling agricultural invertebrate pests, including insects, 15 arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 78.

82. The method of claim 81, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

83. A pesticidal composition comprising, in admixture with an acceptable carrier, 20 wintergreen oil, mineral oil, phenylethyl propionate and safflower oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

84. The pesticidal composition of claim 83, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and 25 weevils and eggs thereof.

85. The pesticidal composition of claim 83, wherein wintergreen oil, mineral oil, phenylethyl propionate and safflower oil are present in the pesticide formulation in the percent ratio of 50% to 10% to 20% to 20%, respectively.

86. A method for controlling agricultural invertebrate pests, including insects, 30 arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 83.

87. The method of claim 86, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

88. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil, mineral oil, eugenol and safflower oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

5 89. The pesticidal composition of claim 88, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

90. The pesticidal composition of claim 88, wherein wintergreen oil, mineral oil, eugenol and safflower oil are present in the pesticide formulation in the percent ratio of 50% to 10% to 20% to 20%, respectively.

10 91. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 88.

15 92. The method of claim 91, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

93. A pesticidal composition comprising, in admixture with an acceptable carrier, rosemary oil, wintergreen oil, mineral oil, safflower oil and thyme oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

20 94. The pesticidal composition of claim 93, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

95. The pesticidal composition of claim 93, wherein rosemary oil, wintergreen oil, mineral oil, safflower oil and thyme oil are present in the pesticide formulation in the percent ratio of 5% to 50% to 10% to 20% to 15%, respectively.

25 96. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 93.

30 97. The method of claim 96, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

98. A pesticidal composition comprising, in admixture with an acceptable carrier, rosemary oil, wintergreen oil, mineral oil, phenylethyl propionate, soybean oil and safflower oil, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

99. The pesticidal composition of claim 98, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

100. The pesticidal composition of claim 98, wherein rosemary oil, wintergreen oil, 5 mineral oil, phenylethyl propionate, soybean oil and safflower oil are present in the pesticide formulation in the percent ratio of 5% to 50% to 10% to 15% to 5% to 15%, respectively.

101. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 98.

102. The method of claim 98, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

103. A pesticidal composition comprising, in admixture with an acceptable carrier, wintergreen oil and castor oil, wherein the composition is pesticidally effective against 15 fungus, bacteria, insects, arachnids, larvae and eggs thereof.

104. The pesticidal composition of claim 103, wherein the composition is effective against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

105. A method for controlling agricultural invertebrate pests, including insects, 20 arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 103.

106. The method of claim 105, wherein the invertebrate pest is selected from the group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

107. A pesticidal composition comprising, in admixture with an acceptable carrier, 25 rosemary oil, wintergreen oil, mineral oil, lecithin and water, wherein the composition is pesticidally effective against fungus, bacteria, insects, arachnids, larvae and eggs thereof.

108. The pesticidal composition of claim 107, wherein the composition is effective 30 against mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.

109. The pesticidal composition of claim 107, wherein rosemary oil, wintergreen oil, mineral oil, lecithin and water are present in the pesticide formulation in the percent ratio of 5% to 22.5% to 22.5% to 0.5% to 49.5%, respectively.

110. A method for controlling agricultural invertebrate pests, including insects, arachnids, larvae and eggs thereof, comprising applying to the locus where control is desired a pesticidally-effective amount of the composition of claim 107.

111. The method of claim 110, wherein the invertebrate pest is selected from the 5 group consisting of mites, aphids, thrips, whiteflies, loopers, worms, beetles, leafrollers, moths and weevils and eggs thereof.